Notebook, N-88-01-03.1

This notebook was probably begun in 1887, but the first dated entry is for January 3, 1888. All entries are by Edison. The undated entries consist of notes on substances, taken from the third volume of Watt's *Chemical Dictionary*. The dated entries include drawings relating to phonograph recording surfaces, the pyromagnetic generator, and electromagnetism. Following these drawings are undated notes and drawings concerning electromagnetic devices (including condensers and a diamagnetometer), dynamo armatures, electric railways, filaments, wax compounds for recording cylinders, and a motograph telephone. Finally, there are notes and drawings from May 1888 relating to the design of an electric typewriter and to battery experiments. The spine is labeled "68." The pages are unnumbered. Approximately 110 pages have been used.

XE172 N-88-01-03.1

Notes from books.

4

Watts Dic. Reg. Vol 3rd p. 1.

Haemaphein: from blood, does not melt when heated.

Haematein, Watts Reg 3rd Val p. 1 - "$C_{16}H_{12}O_6$" ; from Haematoxylin, bulky brown red mass when dried deep red color metallic lustre, Sol H_2O Carbonized by heat =

Haemaloxylin Watts Reg 3rd vol 1 p. 4 from Logwood - $C_{16}H_{14}O_6$ — Tastes like Licorice - Carbonized at High temperature Chlorine converts it into an uncrystalizable mass — It may prove that these Chlorine Compounds may prove as Carbon better than the reg. things.

Darkphotography - Watts 3rd vol Reg p 102 - Selenium when Therm raises to 96 or 97 - Suddenly raises itself in temp. 200 @ 230 after this it has a metallic appearance

Hence, Coat a plate with an excessively thin film of Prepared Selenium, on a non-conducting plate, Raise temperature to within 2 @ 3 deg of this critical point in the Camera, Then the radiant heat of chicken, more or less strong in the S will carry it beyond the Critical point & thus produce a dull surface (a) metallic while that not acted on by radiant heat will remain black obsidian like - Thus we should be able to photograph by invisible heat.

Sulphur does something - rises to 98° then suddenly to 110

English - Wheat is Barley Sugar ?.

Hedericacid - Chars without melting - Watts 3rd vol Reg p 138

Hunt up Mulder's Romney Vegetable albumen a body resembling Cellulose

Glycyrrhizin – Eng.

Glyoxaline. Stand 447 Coutts
See Watts 3rd Sup Vol 8 part 2nd

See Eng Cish – Melting pt Paraffin 49.5° of Ceresin 71.35 – get some latter wax –

Dry Sulphide Copper in Lelande Cat also Calcopyrites

Carbamate of Ammonium is all gaseous when heated – good for residual – but may have vapor tension at 62 ng – look it up

Carb-Manganeseca – decomp at 70.c
CO_2 for residual.
~~Stewarts book~~

Try Sulhead in Leland T Coat
m acetate + sulz mo + H2O

handsome honey metallic salt
insoluble in water which can
be separated in a wave + on melting
leads in oxide — Try Chloride
Lead fused etc

get 10 Lbs each kind Humus.
Rotten wood, Semi rotten wood
Mould.

Phenyl diethyl
Phenyl-azonium- Bromide —
Watts 3rd Supp. pt 2nd p 1051 — decomp
without melting Orange Crystalline

Solid ditolyl in a Sx hour sealed Combustion tube. $C_{14}H_{14}$ - heated to 500 C remains unaltered for many hours but ultimately decomposed with deposition of Carbon - Thus might be good for also for Carbon gas in side tubes. If Limp -

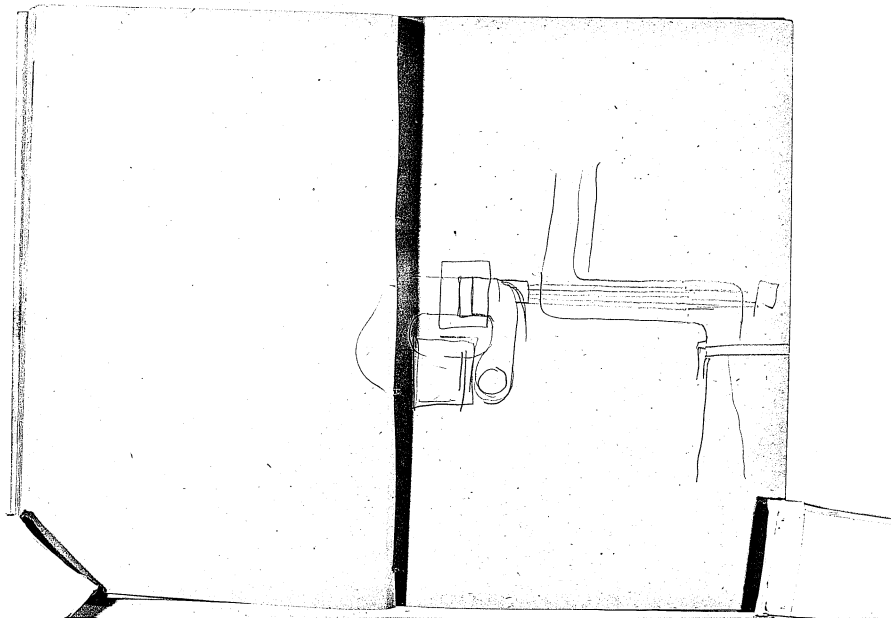
Mannite Dulcite, Sugars for 17s -

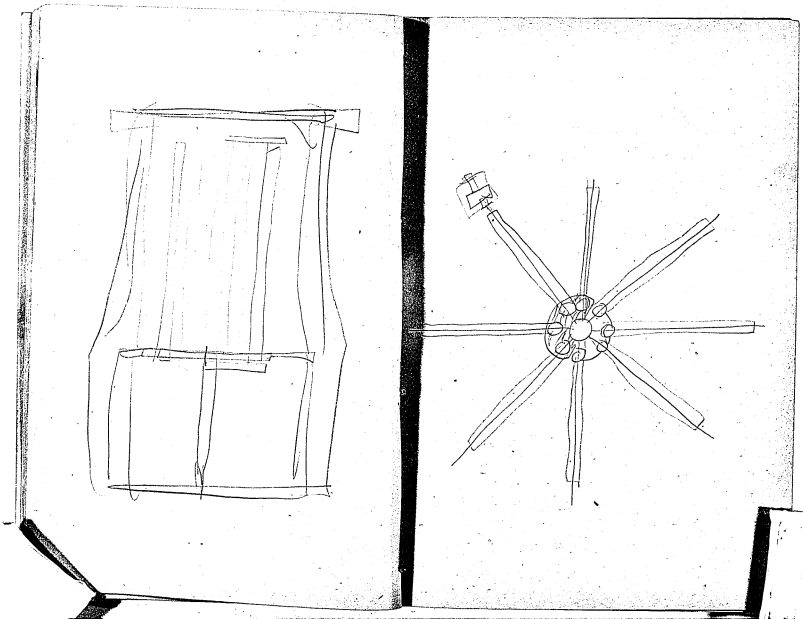
Action Sugar with Chlorine Bromine, Iodine, Hydrogen Iodic acid - Sts

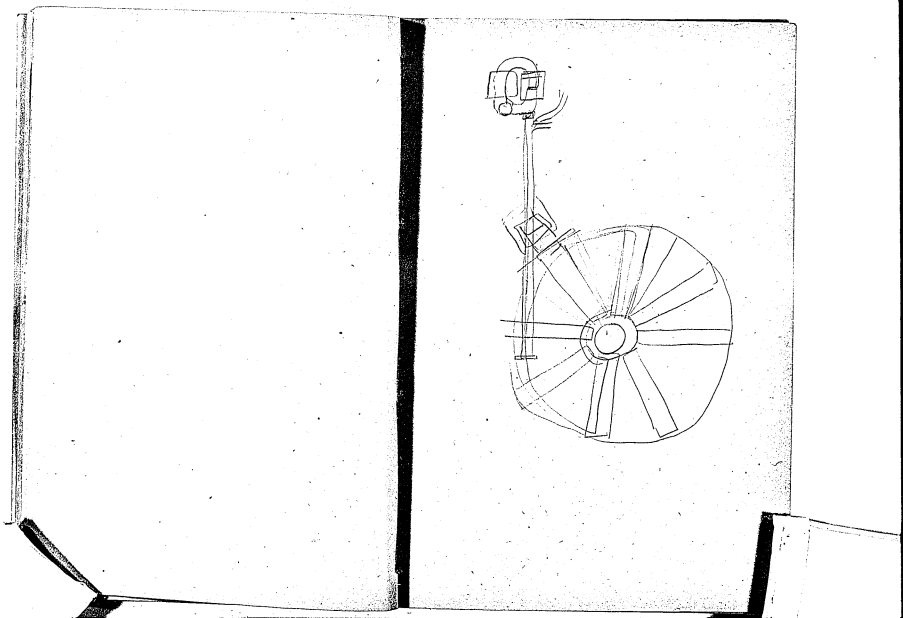
Kinoin - Watts 3rd Supp 2 p1157 Kino red leaves great quantity Charcoal

Nitride Magnesium

made by burning magnesium in closed place with diminished supply air - high temp. Cannot N to unite = Secure to a Conductor + properties - Watts 3rd Sup pt 2 p 1246 — Wake Some

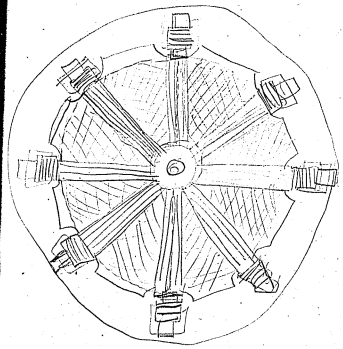


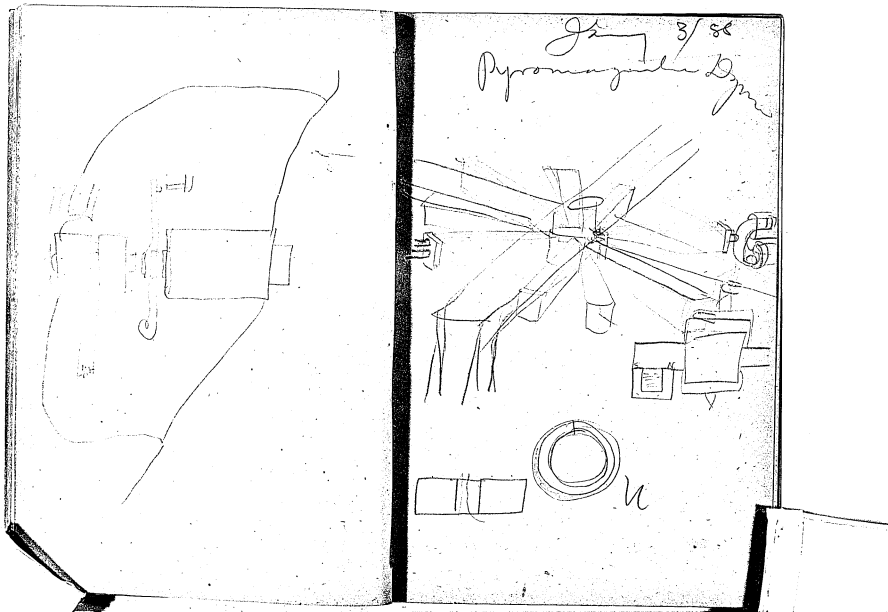




Jan 31-88

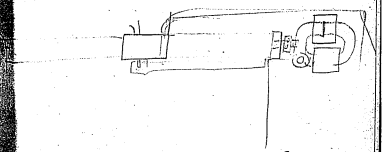
Pyrowax Dynamo

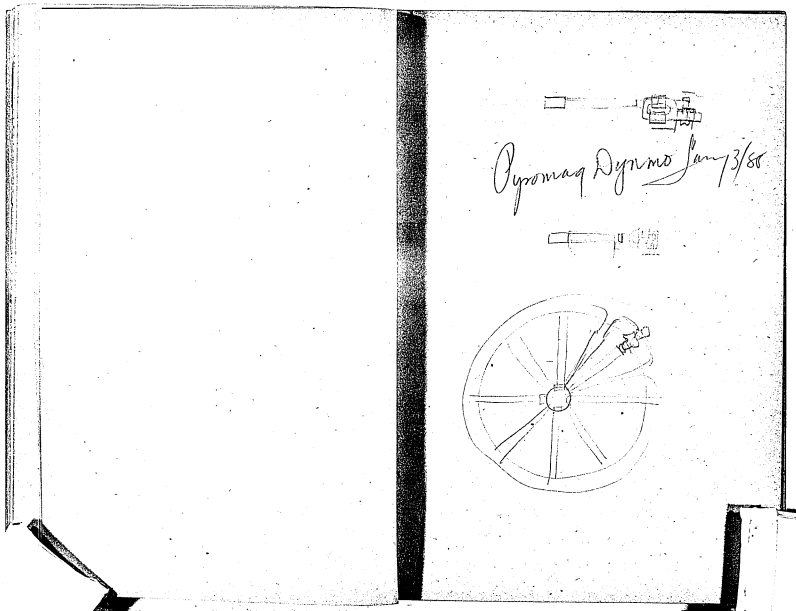


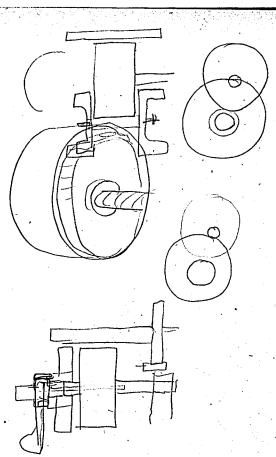

3/ 8c
Pyrometrische Dyn

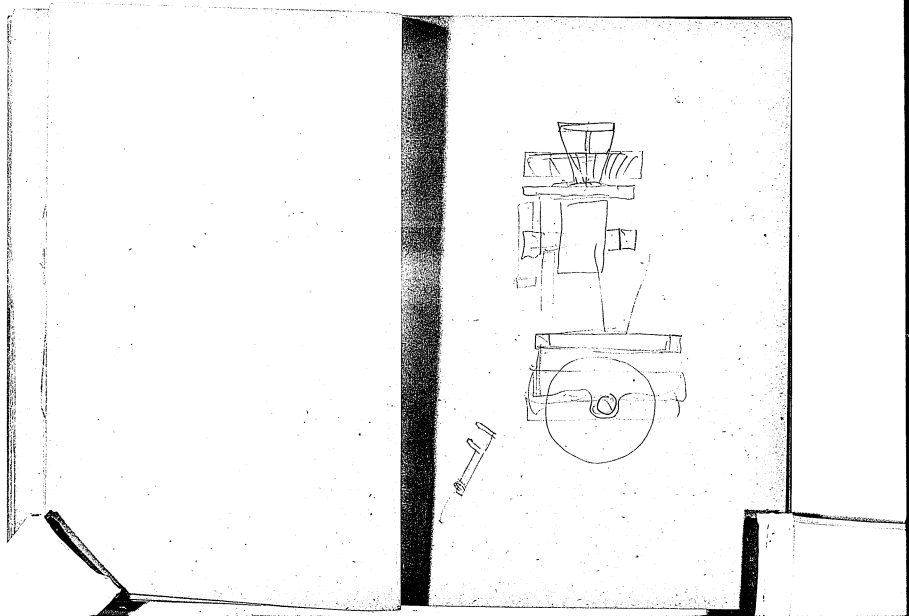
January 3rd 88

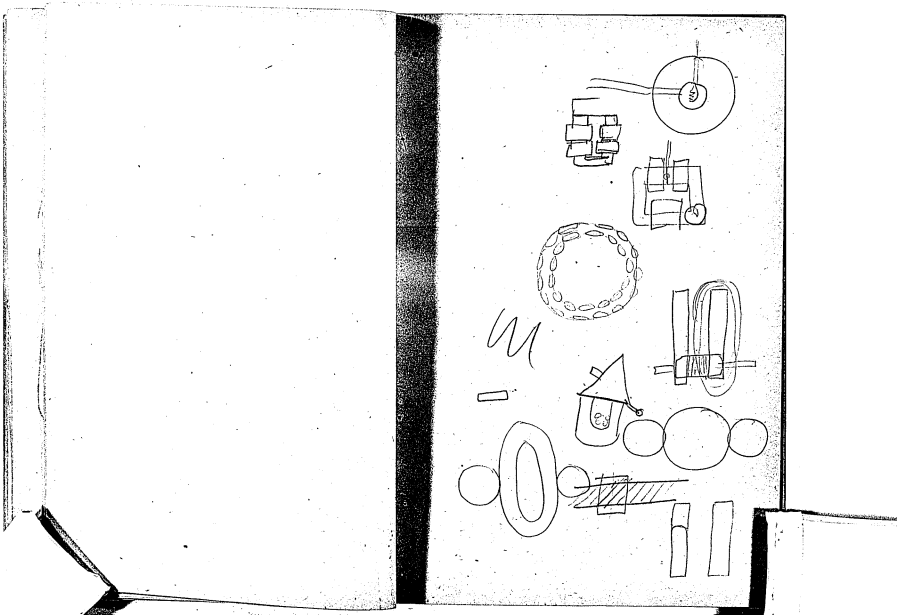
Pyromag Dynamo

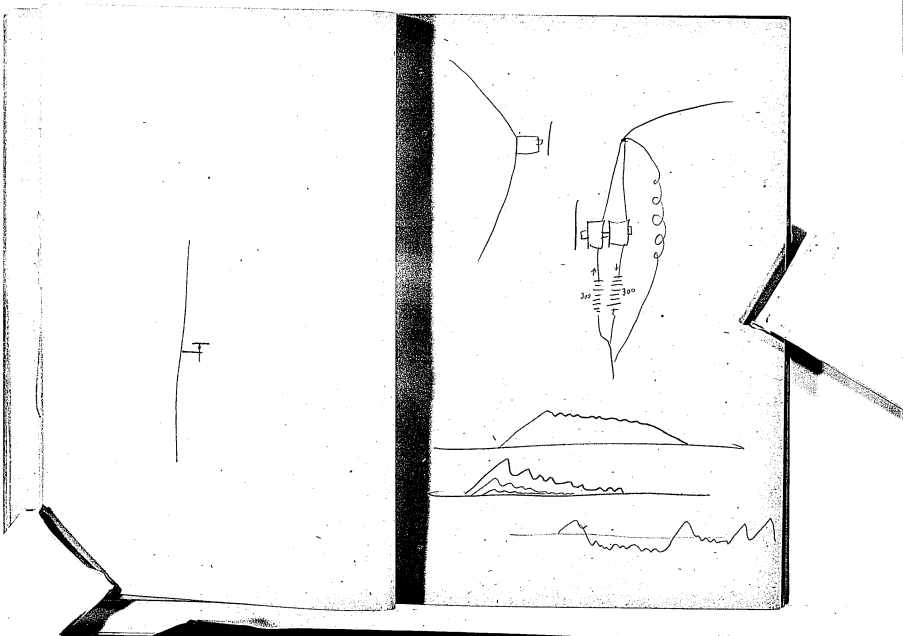


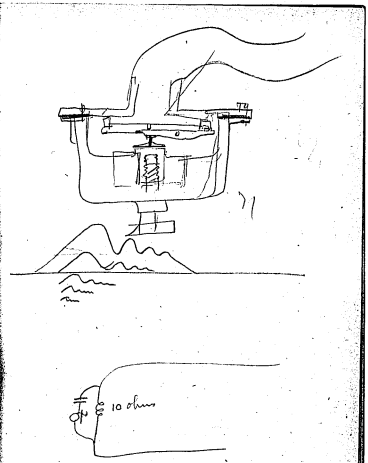




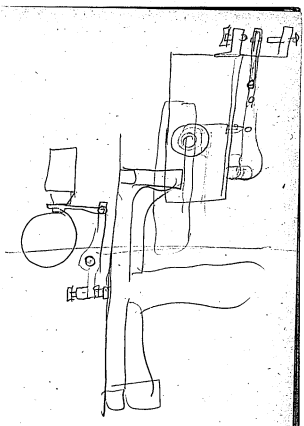


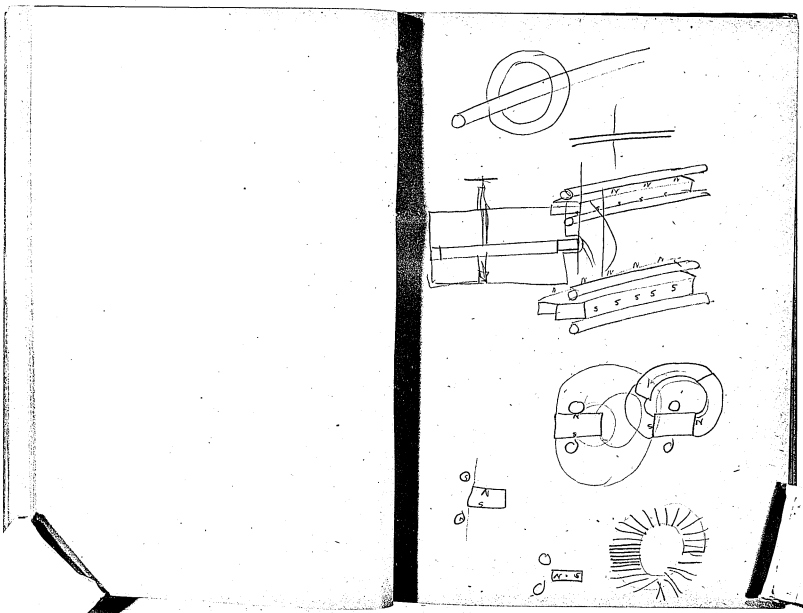


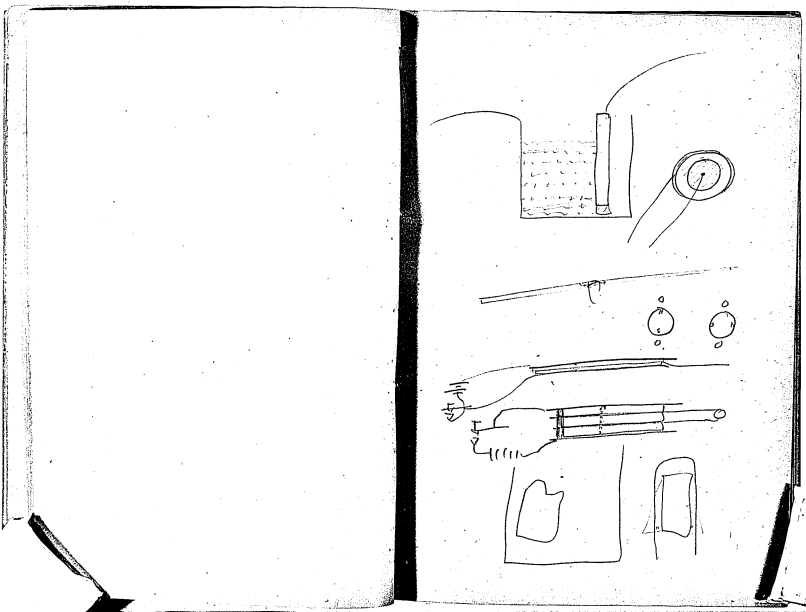


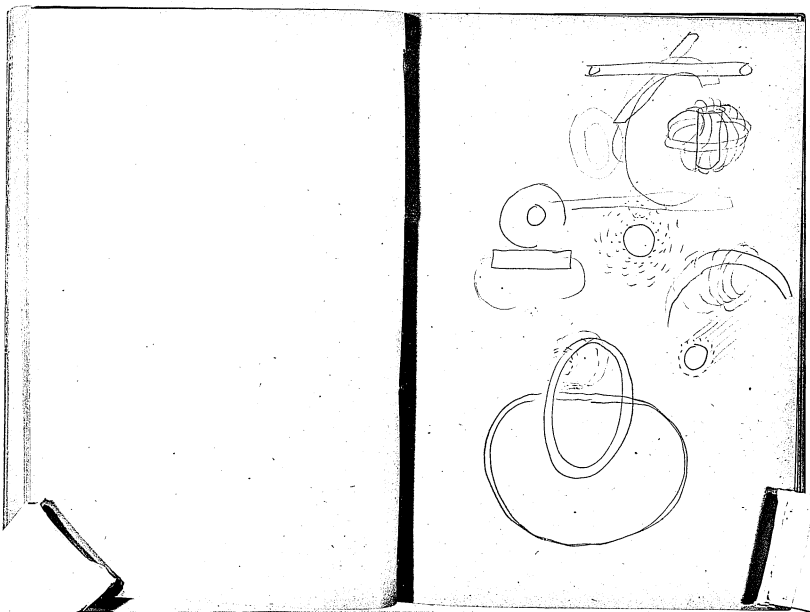

10 ohm

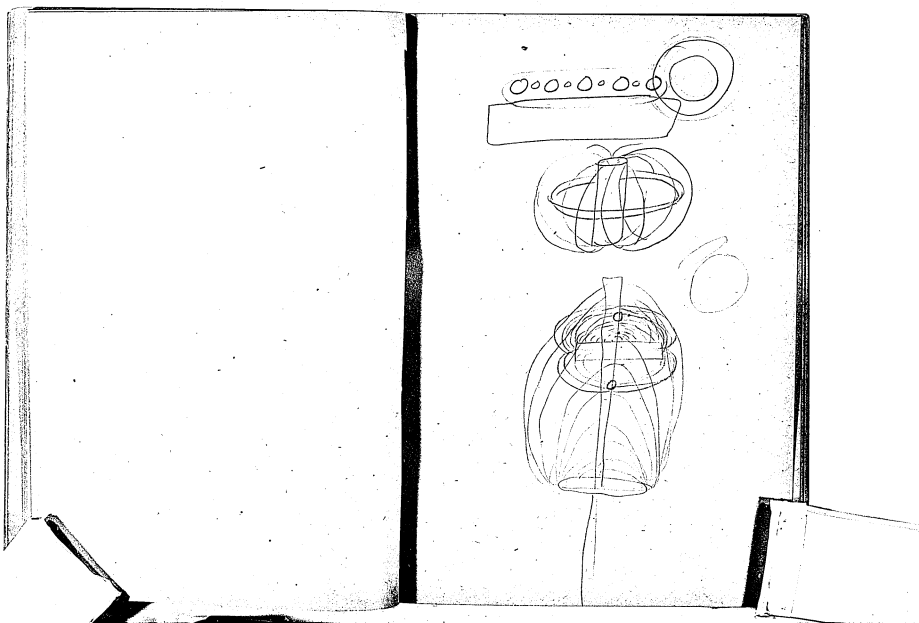
Borisund

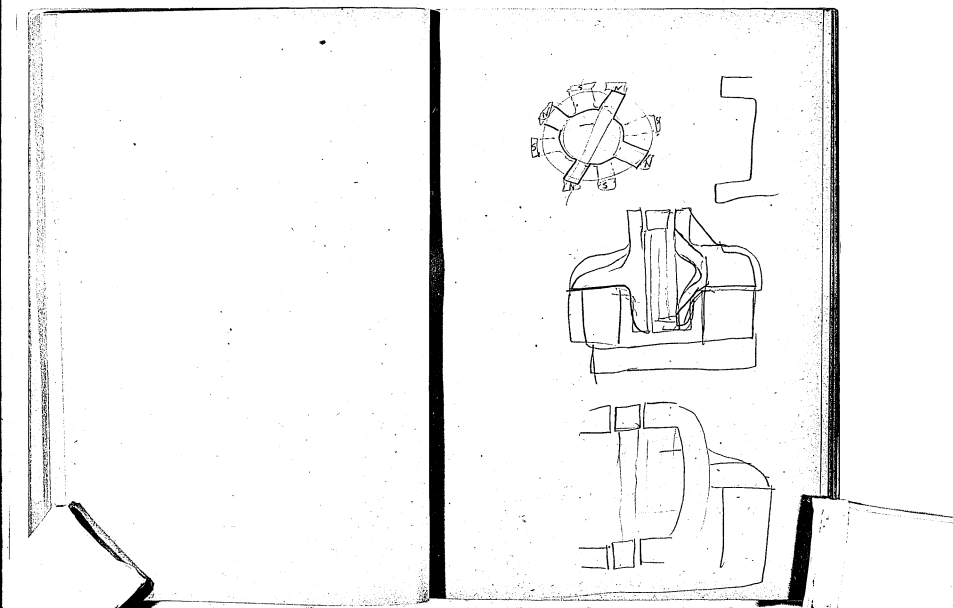


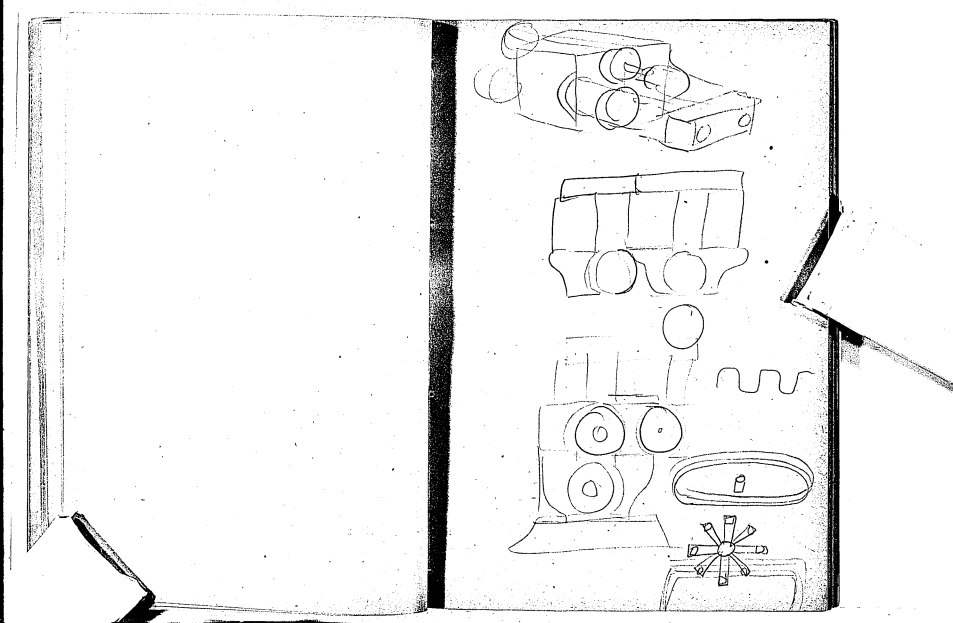


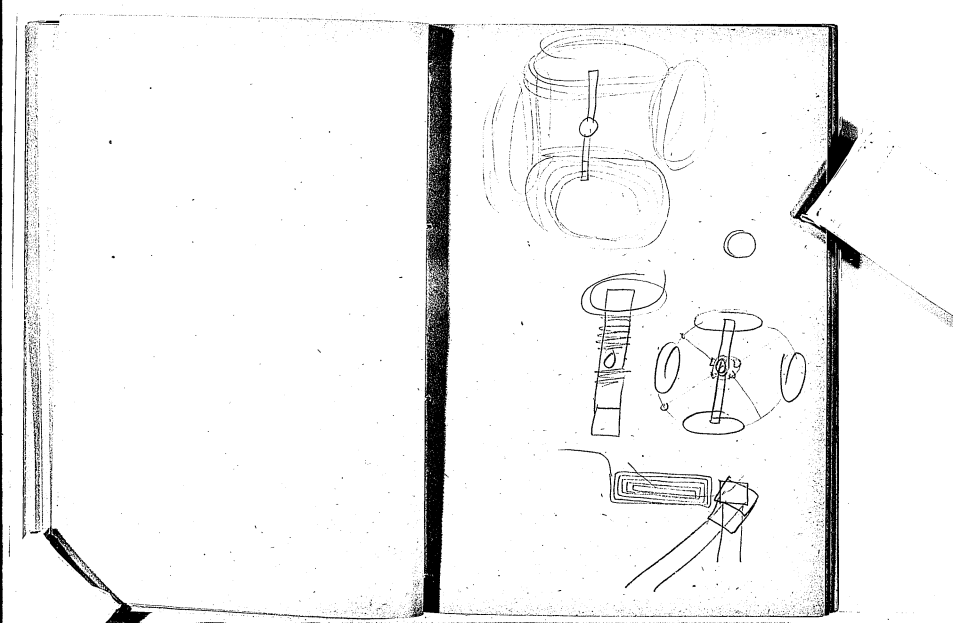


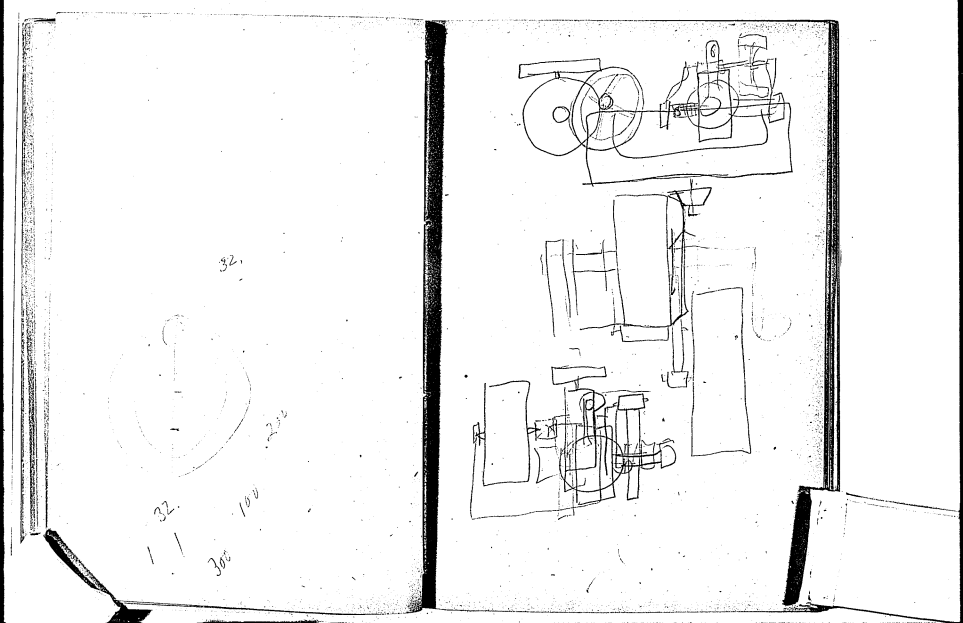


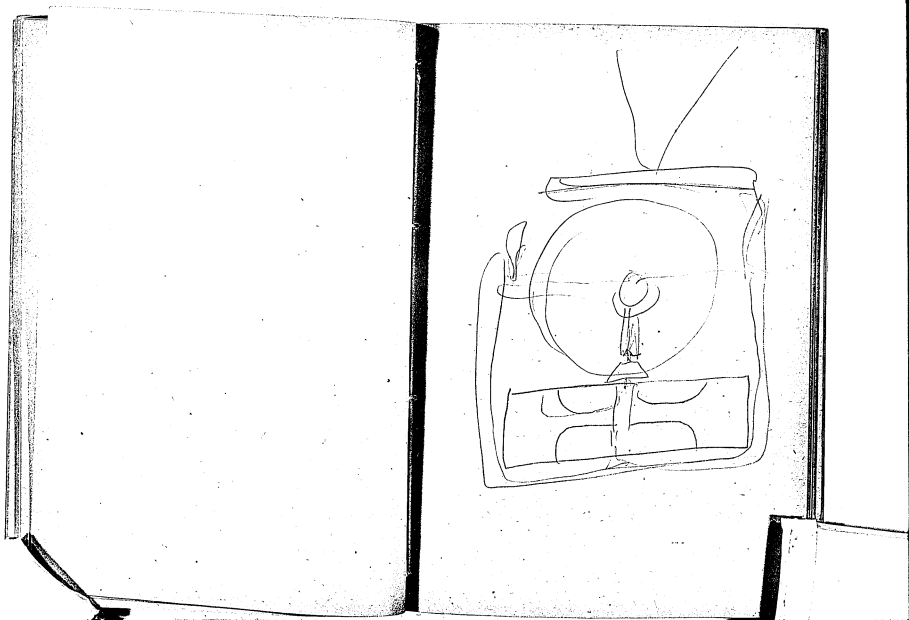


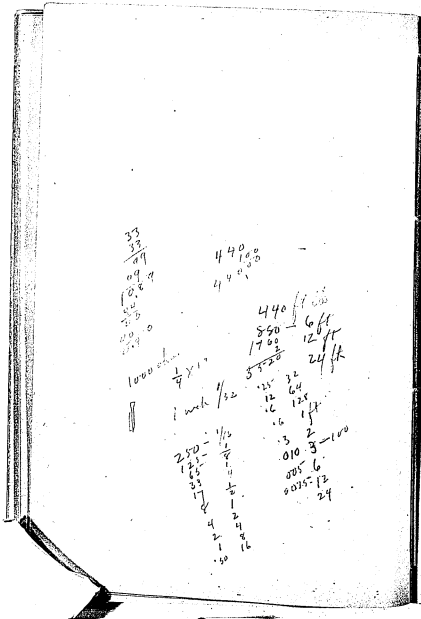







32.
32.
100
30°





Condensers with unfamiliar dielectric, dip foil in Varnish Collodium rubber, gutta p asphalt ozokerite oil, Oxidize them. Try buffed Cop foil oxidized. Try balatta, or Cozumero — dip exceedingly thin solution dilly medip so whole will hd 1/2/1000 thick

Second, Oxidized Cop foil 50 feet surface with polished iron heat, also with platt, silver + others makes something worth while - if Red hot Copper on Cold iron gives $\frac{1}{3}$ Volt ~~voltage~~, why could not be brought down to more reasonable by forming Good Element like a Condenser - (1c) several hundred feet surface,

24 sq feet obtained gives 3520 ft lbs - of Florida Cantral area $\frac{7}{8} \times 1/32$ as a necessary of 1000 ohms

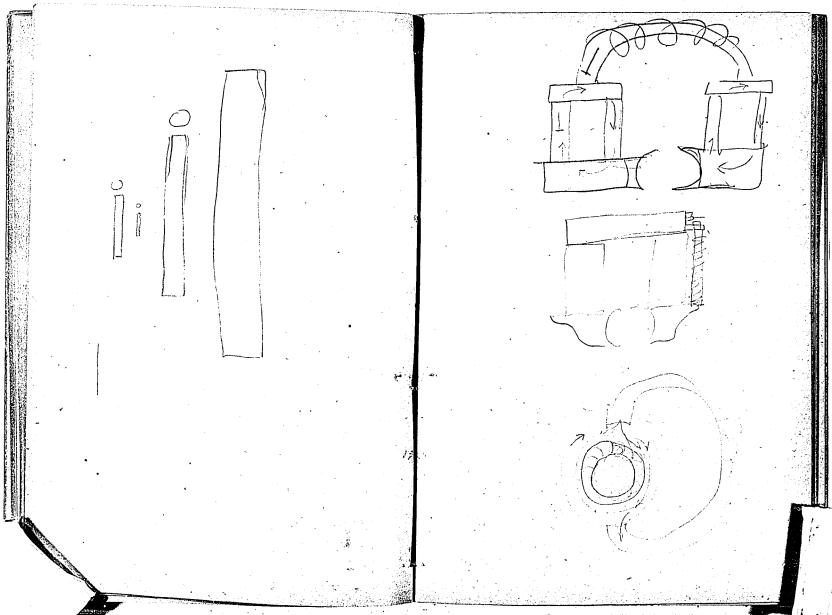
Try pressing Cement with heat

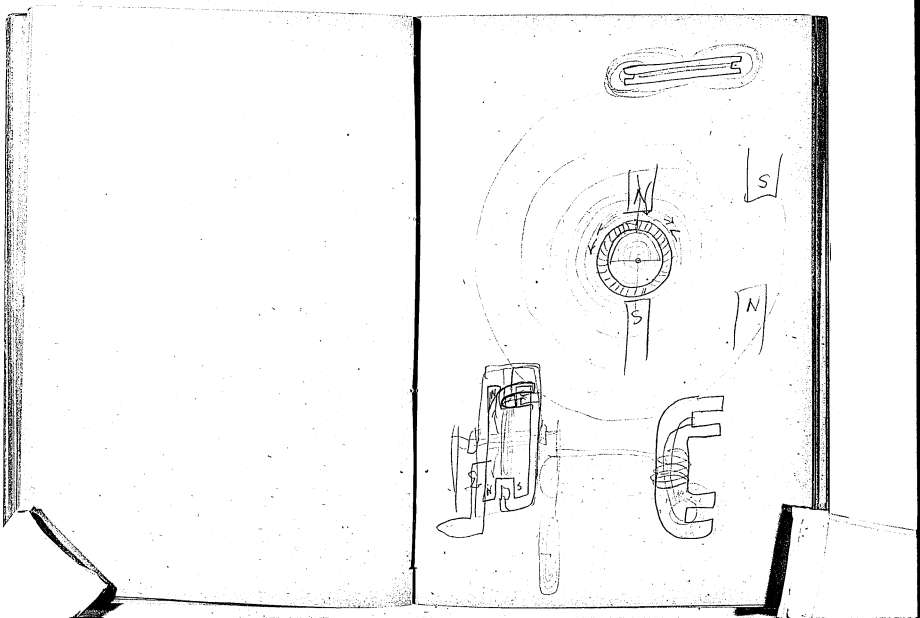
Sulphides (1d) Sulphuring surface of metallic foils may be like Condenser principle. Should give powerful effects.

2. 1/64
4 1/100
8 1/200
16 1/400
32 1/800
64 — 1/1600
128 1/3200
1/6400
200. 1/10000

Try soaking preliminary ashed fibres in 10 vol% Hydrofluoric acid to dissolve ash.

Artificial Hard Beeswax
White Wax - Try + White Carnauba + add one of these to reduce brittleness to proper point + sell for White Wax

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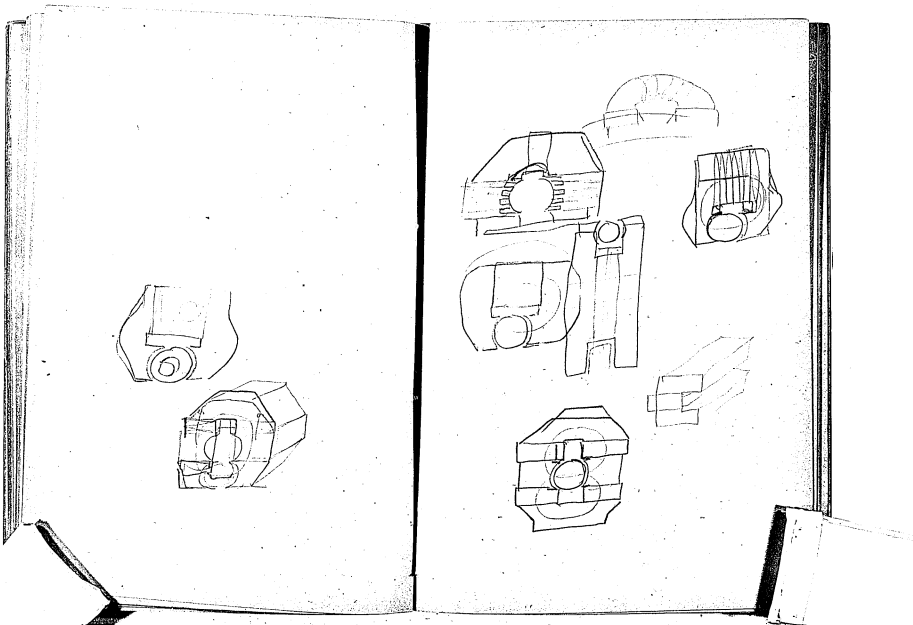
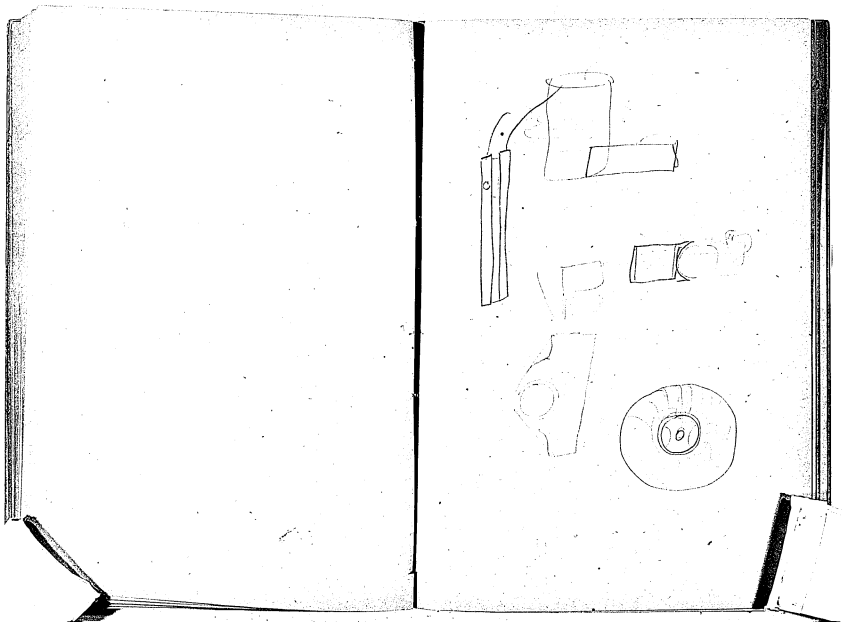
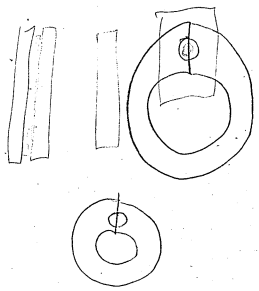
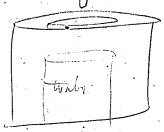




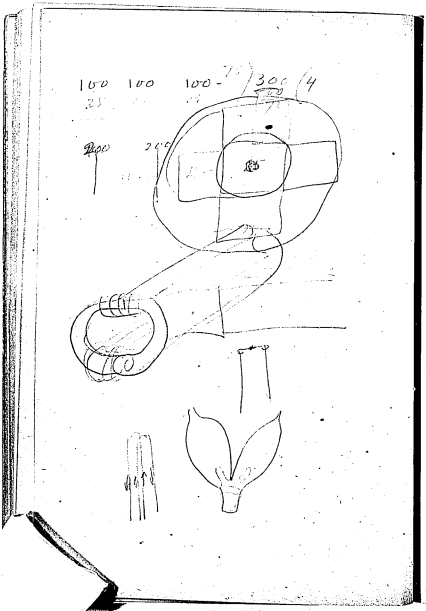


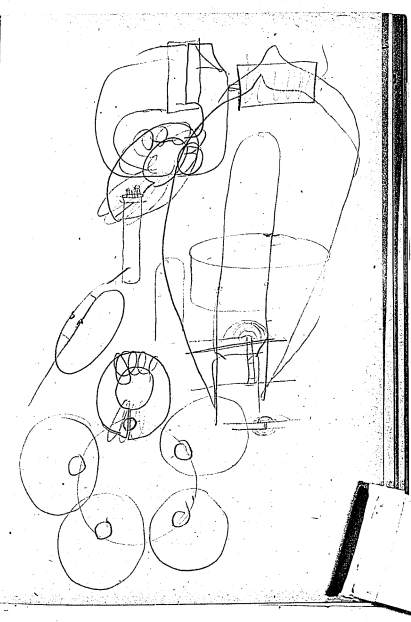
Try Copper + Copoxide with Carbon in fused red hot Caustic Soda with. also other fusable salts.

Carbon + Copper with black oxide between pressed hard boxwillow + heated in non oxidizing atmosphere, Cu. reduced by Carbon with C to CO —



Harden a piece steel in water inside powerful helical magnet powerfully —

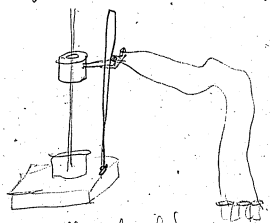

100 100 100 300



Try Naphthaline as a Lubricant
This ought to work better than any oil.

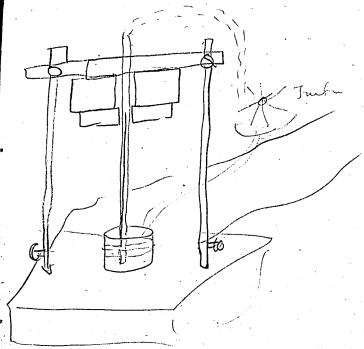
It might be dissolved in Benzol
Etc & drops from an oil Cup.
The Benzol Evaporating leaves
the Naphthaline on the bearing
There are other Hydrocarbons that
might work Anthracene

Diamagnetometer.



attraction of Capillarity of drops by
repulsion due to diamagnetism
over

Diamagnetometer



Try also Iron Solution - perhaps it will pump them up + so work better. Try great variety of Solutions for Electromagnet.

Measure Electrostatic Capacity & other phenomena between 2 layers separated mechanically from each other, Creasote results, acidulated Water & oil etc

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See Miller Chem Phys p 95 Important point on Tannin

Use very dilute Tannic acid on one side very weak alkali on other. then will get result, - The Osmotic Substance must be acted on by one of the things. one thing on one side must be capable of Combining With the other thing on other side & The Solution will act more energetically as they are more weak

Whatough -

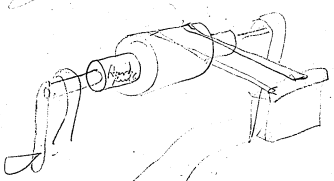
Try all alkaline oxides (2)
Baryta, Lime Carbonate Lime
also Slaked Lime, Carb Baryta,

Soak Reg Chalk in Alkaline
glue fish + gelatin, Try
Kaolin with very very little
alkali water,

Make Cylinders of very concentrated
Urea & see very concentrated
solution,

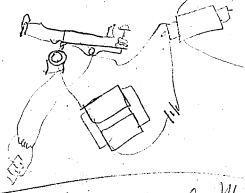
Try Fused Borax - Microcosmic
Salt, also glass with great
addition Soda

Investigate further the Chalk Cutter

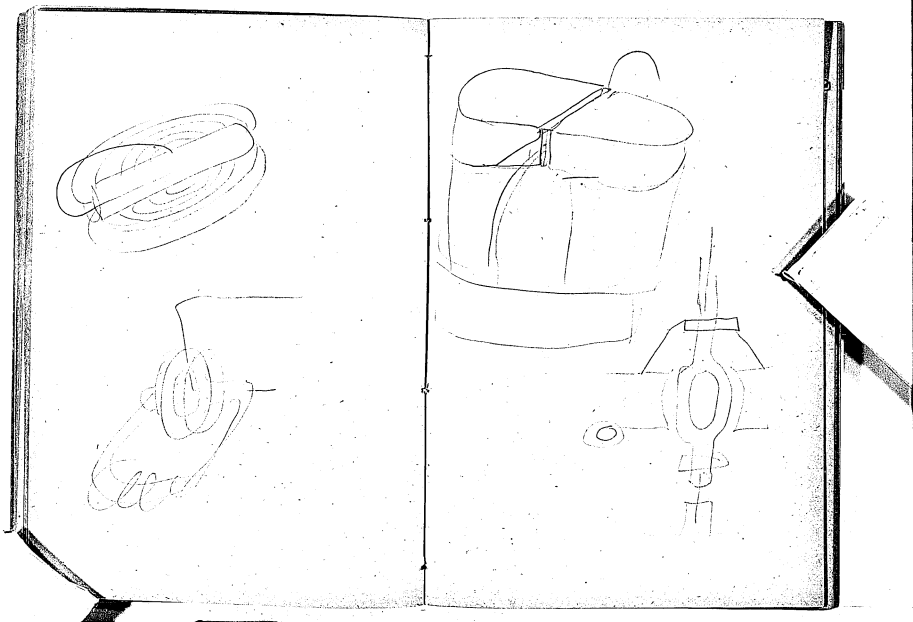


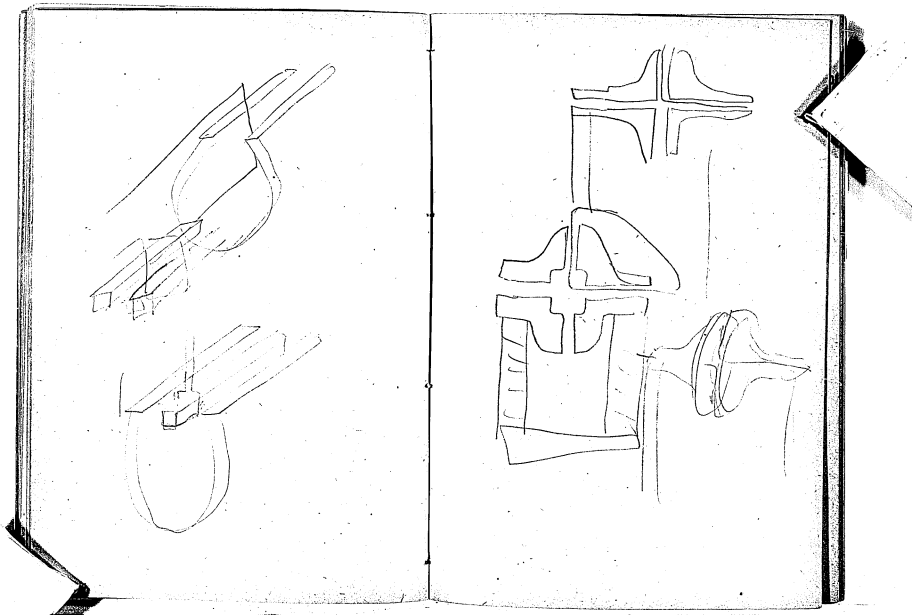
Measure R + EMF also dimensions
R + Sec of Emf recap up also
hold still + touch top of spring
with hot wire to disturb
Capillarity + Ammo gas
Current - Sec of Emf balanced
by Speed

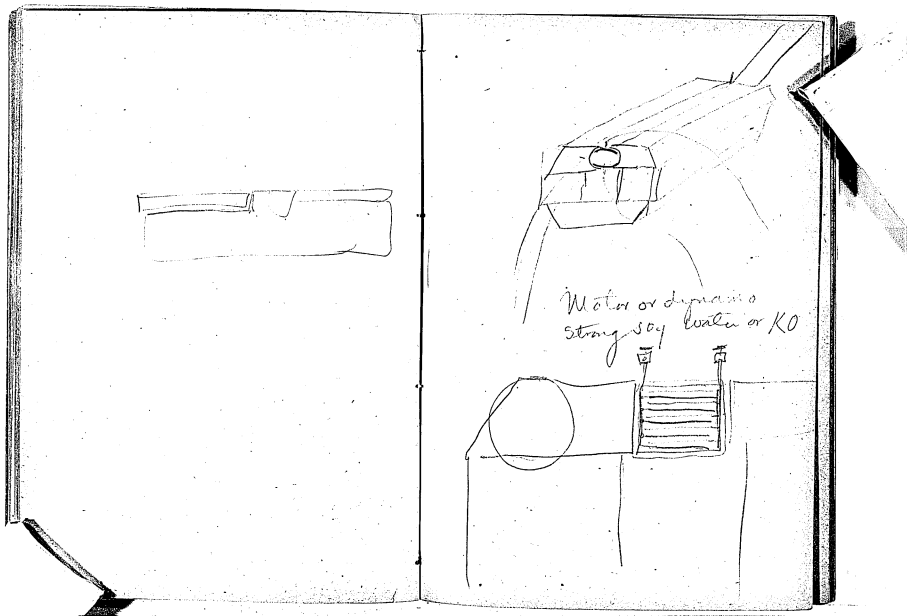
With new platinum Transmitter
Phone style, case [illegible]
~~Coil~~ Heavy magnet in circuit +
Shunt or Condenser around points
to quench sparking & effect of not touching
or Rebound brakes

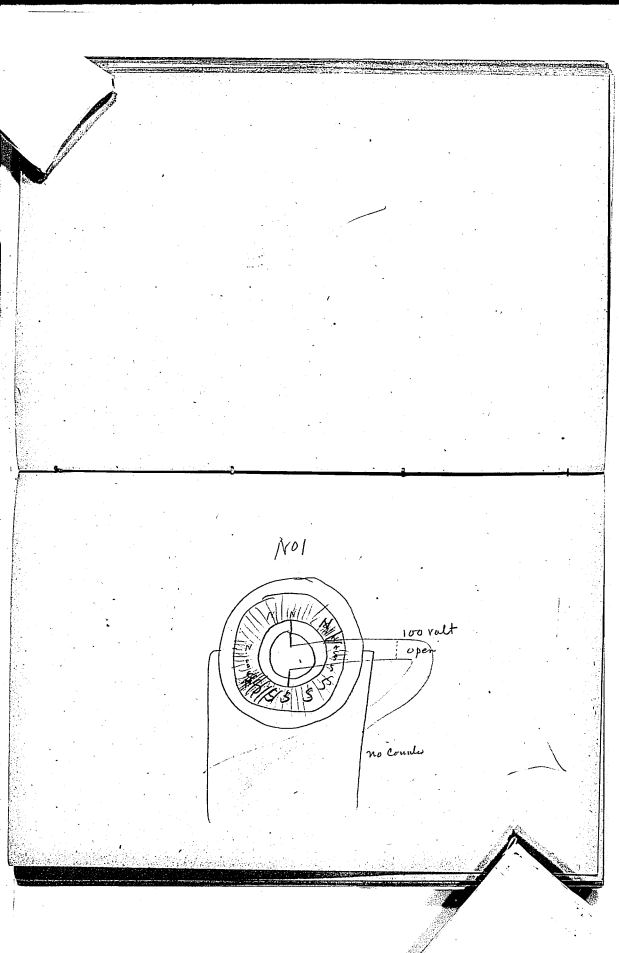


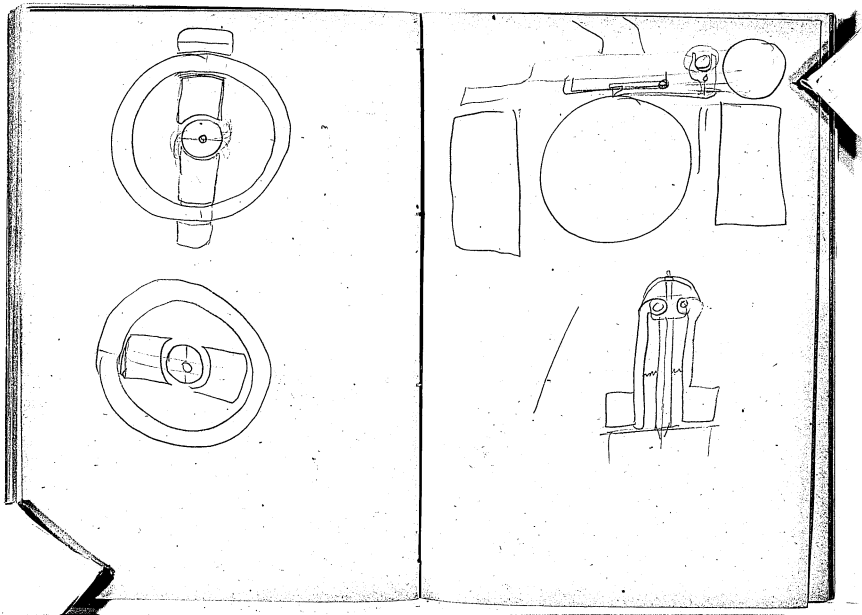
With recent practical Modern
telephone Phonograph Motor, use
greatly dampened Carbon Trans
to get pure voice as Blake
trans-brake Knock it out?

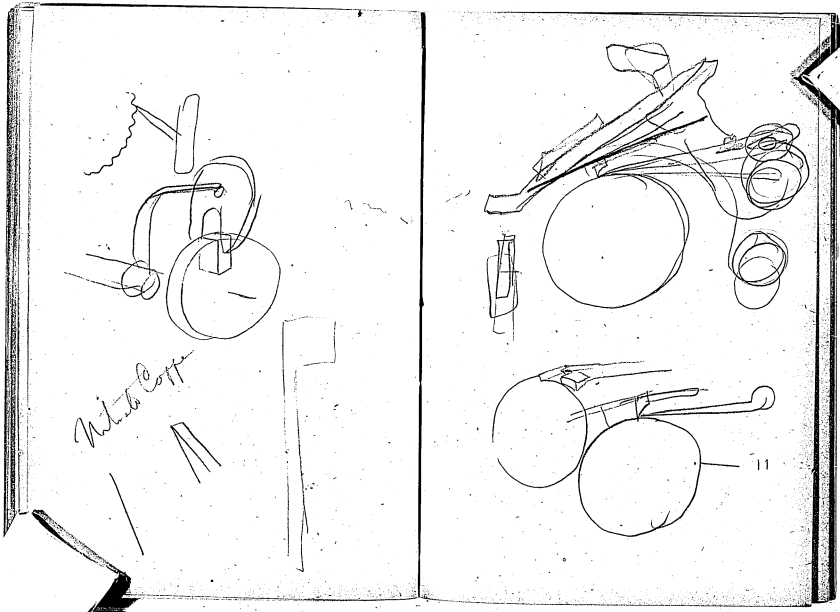


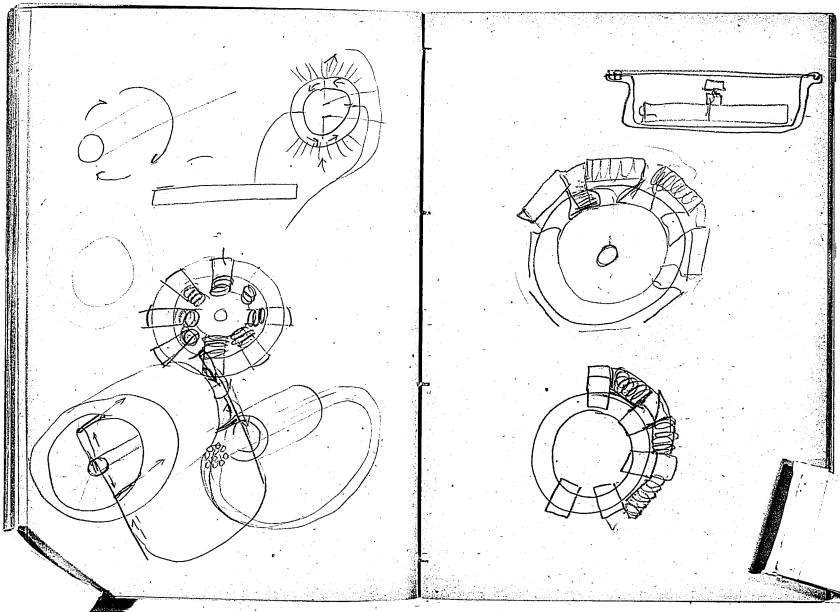


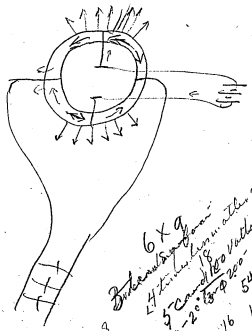

Mätar av dynamik o
strang-styg hastighet av KO


No 1
100 volt
open
no counts

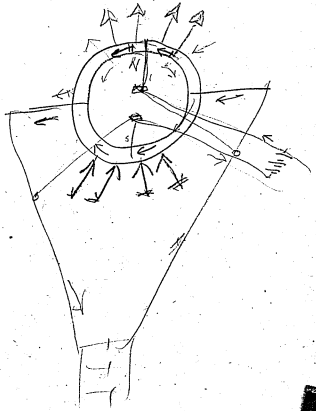


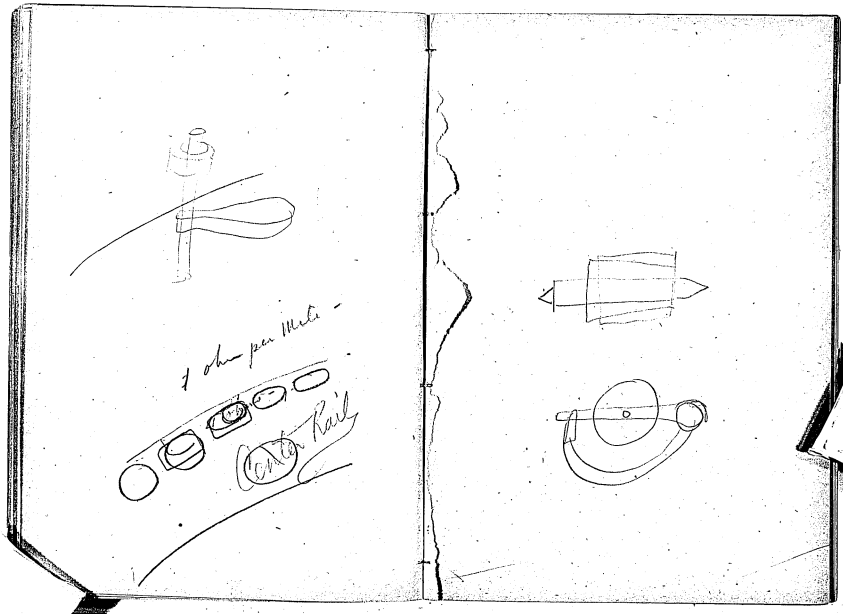

11

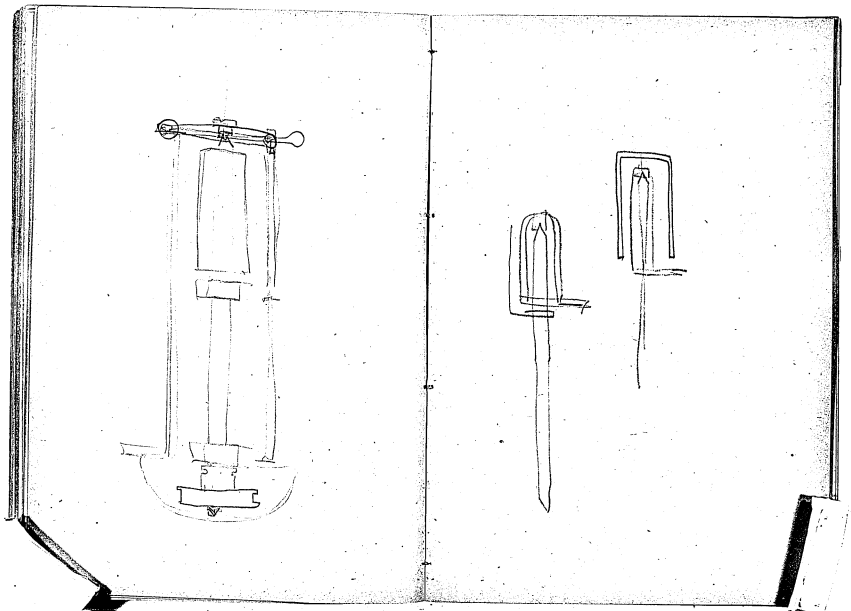


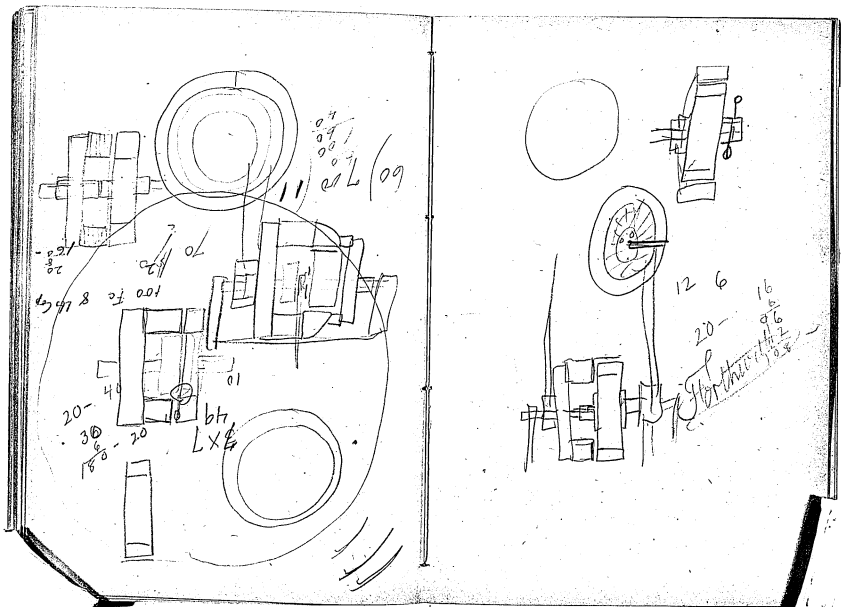


6×9
Bathroom Lighting
4 Lights Lumen 18
5 Candle 18 Watts
10.-20.-30.-20.- 54
10. 16 16/80,
12/80, 10. 12/80,
9/16
.4 Less matter. 13/54
4 Lumen Lamp 1/4

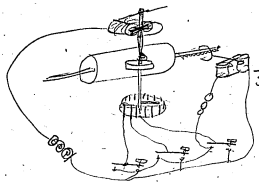




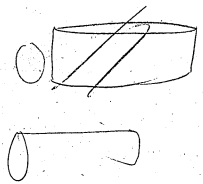




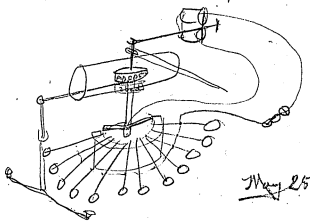
Principles of Typewriters



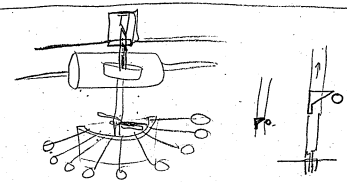
May 25–1880



2 Fundamental principle Typewriter

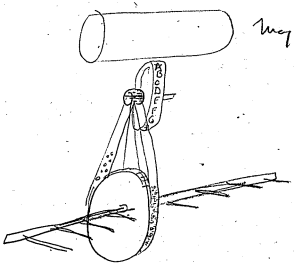


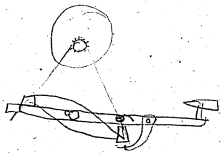
May 25 57



Fundamental

Type unites,

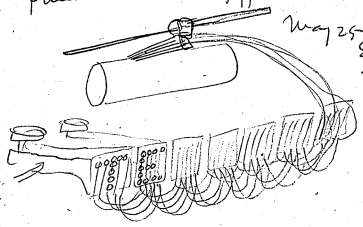


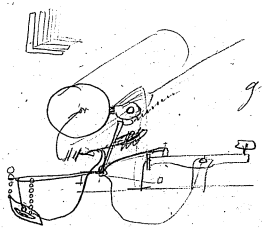


Fundamental - Typewriter.

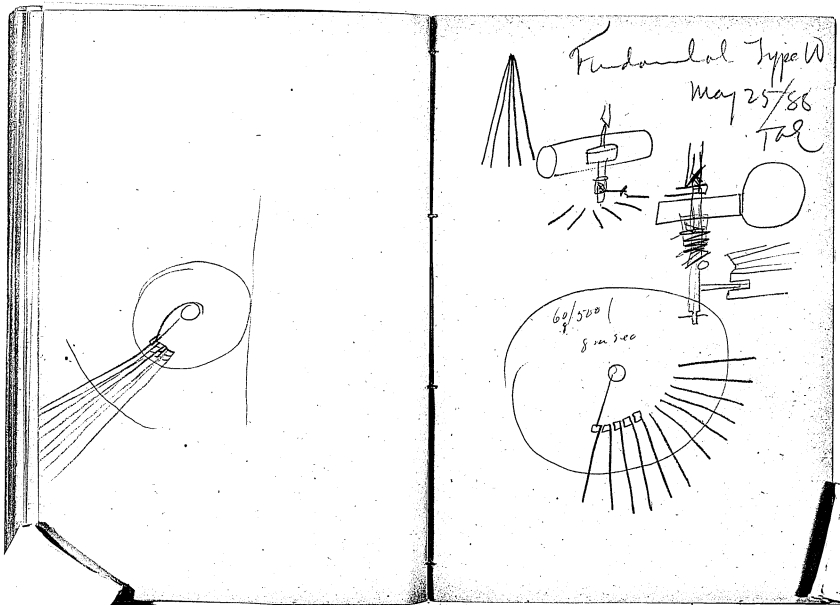
May 25 58

TAS



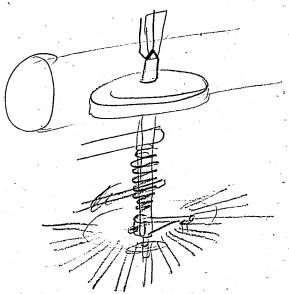


good


Fundamental Type N
May 25/86
TAQ
60/sec
8 in sec

Fundamental Typewriter

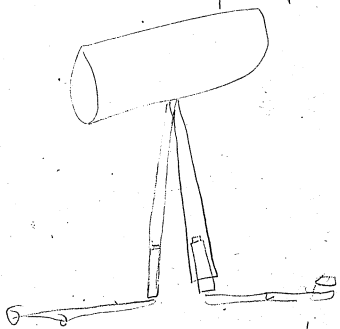
May 25 1888



May 25. 1888

Fundamental Type Mt

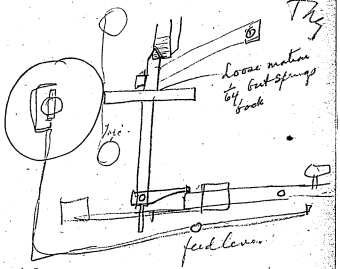
Fork

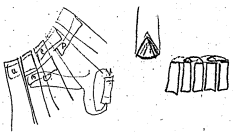


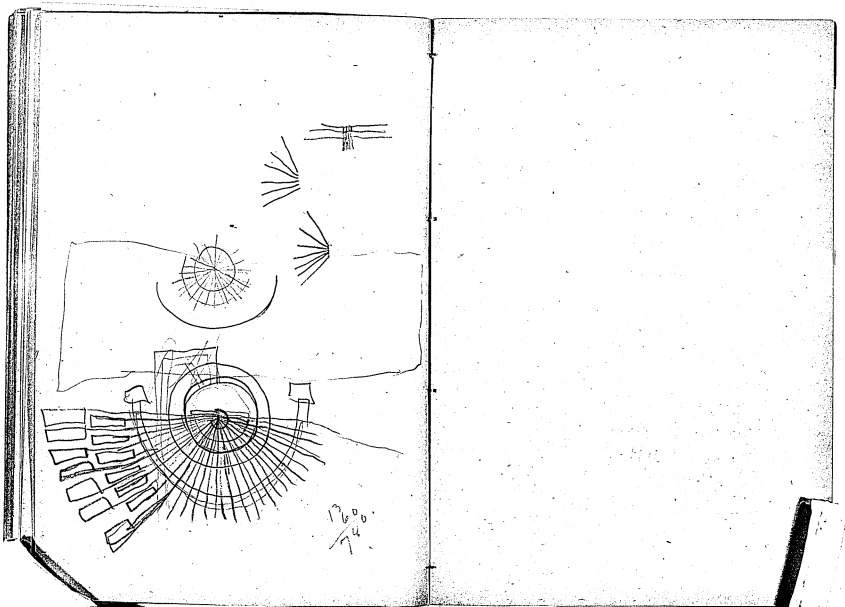
Drive types up by momentum

Fundamental Type Mt

May 25 88







Battery Experiments — May 27. cc
T&S

Chloride Copper instead instead oxide — use Sul acid Solution + Cop plate also. Chloride ammonium Solution

Zinc (Lead lining ~~Carbon~~) — Sul acid + Sulphate Lead II —
little HCl sol + Chloride Lead.

Reg Sol + Cu + Zn with powdered antimony also arsenic to form SbH + AsH. Expt

Same but use Monochloride Cop -

for Reg Sol Substitute Hypochlorite Solution

use Fluoride of Copper instead Oxide

in Zn Cu + Chl am use Nitride Copper instead Oxide —

Peroxide Copper instead Oxide

Oxchl Cu — Brunswick green — instead CuO —

Phosphide Copper - instead CuO

Chloride of Copper - " CuO

Try the Hypochlorites also perchlorates Chlorates & Chlorides

Hydrate of perchloric acid a Solid Sub + most powerful Oxidizer Known

Fluoride Zinc Dissolves Oxide Zinc Readily

Chloride Chromium instead CuO not affected by Caustic P.

Atomized by Sulphuric acid Hence can be used with Carbon as dehydrogenizer in Sul of Zinc

Ammonia Chloride
dissolves oxide Zinc

Chromate Lead
Lead plate –
Cathode Gold

Reg b at
Chlorate, or
Hypochlorite or ates
of Copper Crystals

Manganese Salts ppted by
to Manganic hydrate
Caustic Pot, great
reducing agents.

Dilute SO_4 dissolves
dissolve manganic
Hydrate, hence
Carbon Zinc & SO_4
with manganic

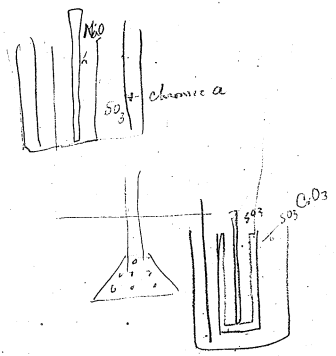
Hydrated Peroxide
making contacts
washed

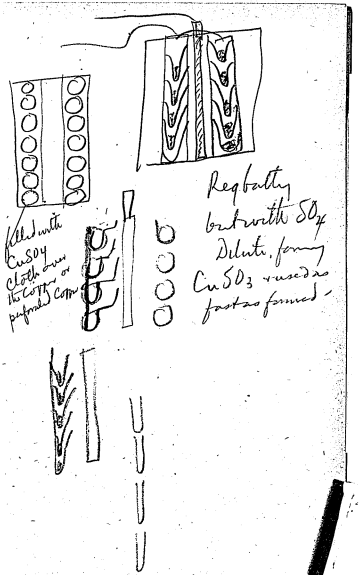
A hydrated Peroxide is precipitated when a manganous salt is precipitated by Hypobromite Potash & / Hypochlorite Potash

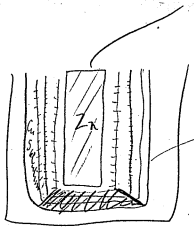
If Peroxide de Manq (hyd) is as acid as watch salts then Zinc + Carbon in Chl Sodium ought work with the peroxide as Carbon Cl forming Chl Zinc + Soda Combining with the Peroxide forms permanganate.

Lead Zinc permanganate Lead
" Copper
with $CuSO_4$

Try Regballoy butt with 10 pet sulphuric acid forms $CuSO_4$ as wanted


NaO
SO_3 + chromic a
SO_3
Cr_2O_3


filled with
$CuSO_4$
cloth over
the ends as
perforated
Reg battery
but with SO_4
Dilute, forming
$CuSO_3$ + used as
fuses formed.

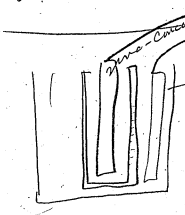


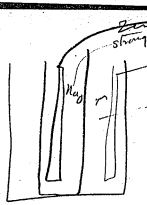
Several Cylinders of perforated Copper thin ones Cell Containing Crystals of $CuSO_4$ percolates through & is used up before it gets to Zinc

Why Can't Reg Leland be used with Sulphate Zinc, & $CuOxide$ —

Same principle Carbon & CrO_3 + SO_4 —

Try us Reg Leland, Hydrated peroxide Manganese in Copper Trough with alkali & acid —





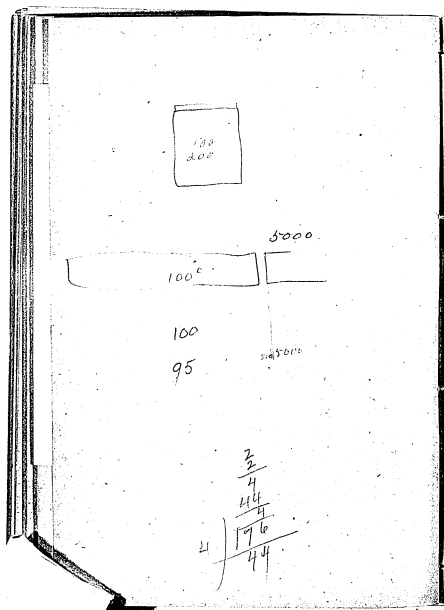
Chl Zinc &
Oxychloride Zinc
in Trenglis -

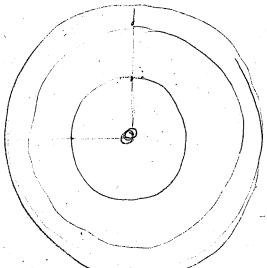
Ignited anthracite + peroxides lead
+ manganese, in Chl am, SO_4
Carb Soda - etc.

Try Hg Electrodes + Zinc
for storage. alkalis -

See 1st Jap Watts Cuprous Chloride
Metallic Copper - perhaps Cop
reduced by H. dipped in Sol
of Cuprous Chl ferric Cl of
Sal Chromate Pot in HCl becomes
Covered with deposit Cuprous
Chl which on Exposure to
light becomes gradually
black with Copper reflex
its insoluble in Sul acid
hence Zn + Cu Electrodes
with Trenglis filled with d
out of the gases Boiling

Chloride Copper in Sol.
of Chl Na or perhaps
NH4Cl - the chloride being
in trough chronogen
a good battery -


130
200
5000
100°
100
95
2
2
4
44
4
196
44
220.
220
44
480
.5 amp
40Cp
75.
32
220
220
440 -
½ the wire
+ 200 Cp
minimum
+ Bed Room
32
.35
200 Volts
2 Lamps
75. 2 Lamps
200 volts
1 amp 44
1 ohm 1 Volt
4 — 2 "
1/2 " 3¢
3¢
32.
2 Volts 4 ohms 1/2 amp
2
280
140
4
560
2
280
280
1120
1120

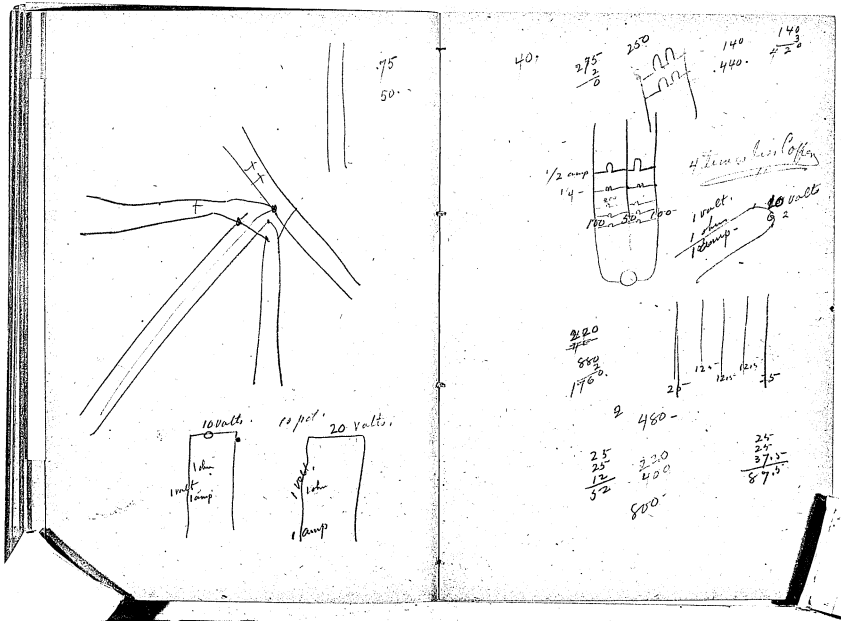


2 new lamps series
1/2 ampere, 440 ohms
200 Volts.

2 old 10" Ewd 220 Trim. 440
another 440 - 880 Reo.
400 Volts:
1/2 the wire, + 20 cp
Lamps instead of 16 —

2 double Lamps equal economy
440
440
88 7760 — as against
440 — or 4 times
1760
less 1760 or Equal Cp.
or old Economy
1000 ohms against
440 new Lamps
& Same Lamps 2.2
less Copper —

440 / 1000 / 2.2
880
120


.75
50.
10 volts.
1 ohm
1 volt
1 amp
10 pot.
20 volts.
1 volt
1 ohm
1 amp
40.
275
2
0
250
140
.440.
140
3
2
0
1/2 amp
14-
100 ohm
36-
200-
4 ohms in Series
1 volt.
1 ohm
1 amp
10 volts
0
2
220
440
880
1760.
2
480-
25
25
12
52
220
400
800.
25
25
37.5
87.5

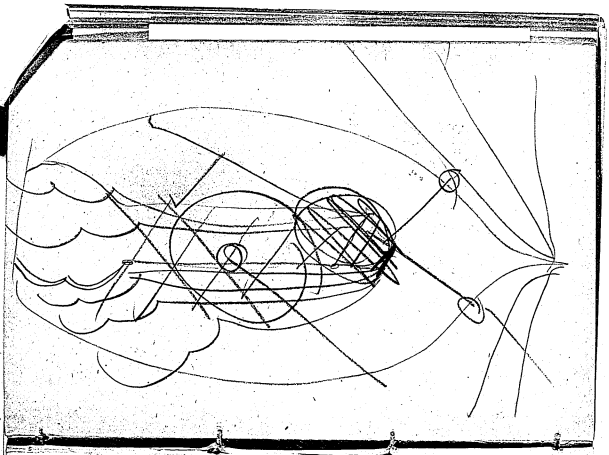
16
6
96 — O
12
42 - Carbon

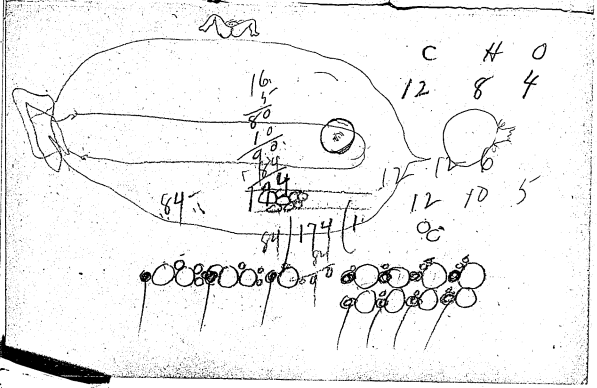
$C_6H_7N_1SO_3$

72 . 7 . 14 . 32 . 48 .

2 32 108.
4
72
108 = 18

72 — 72
7
14
32
48
173




C H O
12 8 4
12 10 5